

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of Claims:

Claims 4-12 and 15-18 are currently being canceled.

Claims 1-3, 13, 14 and 19-21 are currently being amended.

Claim 22 is currently being added.

This amendment amends, adds and cancels claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-3, 13, 14 and 19-22 are now pending in this application.

Objection to Title:

In the Office Action, the title of the invention was objected to because it was not clearly indicative of the claimed invention. By way of this amendment and reply, a more descriptive title is being submitted.

Claim Objections:

In the Office Action, claims 1-20 were objected to because of minor informalities noted on page 2 of the Office Action. By way of this amendment and reply, presently pending claims 1-3, 13, 14 and 19-20 have been amended to overcome these objections.

Claim Rejections – Prior Art:

In the Office Action, claims 1-18 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,394,852 to Huang; and claims 19-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Huang. These rejections are traversed with respect to the presently pending claims under rejection, for at least the reasons given below.

The present invention according to claim 1 is directed to a direct electric current superconducting cable, which corresponds to a power cable. In stark contrast, Huang relates

to a signal plug (or signal cable). A power cable is used for a high current (at least 100 Amperes) and a high voltage (at least a few kVoltage), whereas a signal plug is used for a very weak electrical signal having a current of a few mAmperes or less and a few Volts or less.

The insulation of the wires 31 to 35 shown in Figure 8 in Huang is achieved by insulating pieces 18, and the insulation from the earth (the sixth wire) 36 is also achieved by an insulating piece 18. Therefore, the first through fifth wires 31 to 35 and the earth (the sixth wire) 36 are all insulated in the same way.

In contrast, the insulation between the superconducting layers 22 shown in Figure 5 of the drawings of the present application is achieved by the layer insulations 23, whereas the insulation between the earth and the superconducting layers is achieved by the insulation layer 24.

Accordingly, since the insulation between the layers and the insulation between the earth and between the superconducting layers of the superconducting cable of the present invention are different from each other, the structure of a superconducting cable in accordance with the present invention used for passing a high current with a high voltage at a low temperature, is different from the structure of the signal plug in Huang used for passing a low current with a low voltage at ordinary temperatures.

The structure recited in claim 1 and the structure as described in Huang differ as mentioned above. Huang does not disclose or suggest the claimed superconducting cable for passing a high current with a high voltage, and Huang does not disclose or suggest a superconducting cable comprising layer insulations disposed between the superconducting layers, and an electrical insulation layer disposed around an outer side of an outermost superconducting layer (whereby features from now-canceled claims 8 and portions of claim 20 have been incorporated into presently pending claim 1).

Accordingly, presently pending claim 1 is believed to patentably distinguish over Huang.

Furthermore, since the potential differences between the superconducting layers are small, the layer insulations 28 of the present invention do not need to have large field strength. Therefore, the layer insulations are formed of a thin kraft paper having a low strength, as recited in presently pending dependent claim 2. Since the potential difference

between the earth and each of the superconducting layers is large, the insulation layer 24 is formed of a compound tape that consists of a laminated kraft paper and plastic film having high insulating strength, as explicitly recited in claim 2. These features are not disclosed or suggested by Huang.

Therefore, claim 2 is believed to patentably distinguish over Huang, for these additional reasons, beyond those provided above for its base claim 1.

New Claim 22:

New claim 22 has been added, and recites features by which the layer insulations are not formed on a laminated plastic film, so that the layer insulations are clearly different from the electrical insulating layer. Huang teaches the use of a same type of insulating layers for his signal plug, and thus claim 22 patentably distinguishes over Huang.

Conclusion:

Since all of the issues raised in the Office Action have been addressed in this Amendment and Reply, Applicant believes that the present application is now in condition for allowance, and an early indication of allowance is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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